



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/820,724

04/09/2004

Shigeharu Urabe

Q81024

8989

23373

7590

01/26/2005

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

LEURIG, SHARLENE L


ART UNIT

PAPER NUMBER

2879

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/820,724	URABE, SHIGEHARU 	
	Examiner	Art Unit	
	Sharlene Leurig	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-11 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/682,532.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04092004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. (5,644,193).

Regarding claim 1, Matsuda discloses a phosphor powder containing phosphor particles that comprise zinc sulfide as the matrix thereof and contain an activator and a co-activator (column 11, lines 8-13), wherein a percentage of the projected area of the phosphor particles contained in the phosphor powder are those having an aspect ratio of at least 1.5 (column 6, lines 5-9).

Matsuda fails to exemplify the percentage of the phosphor particles with the above aspect ratio. However, Matsuda discloses phosphor particles with such characteristics to provide ease of controlling the thickness of the phosphor layer, and to also attain a high level of brightness (column 11, lines 13-17).

Therefore regarding claims 1-3, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the phosphor powder of Matsuda to have a high percentage of its phosphor particles having an aspect ratio of at least 1.5, in order to maximize the brightness level provided by the phosphor layer and the ease of control over the phosphor layer.

Regarding claim 7, Matsuda discloses the activator to be copper.

Regarding claim 10, Matsuda discloses the average size of the phosphor particles to be between 2 and 10 micrometers, and therefore discloses the mean length of the major axis of the phosphor particles to be at most 100 microns.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. (5,644,193) in view of Kimura et al. (JP 08-183954) (of record).

Matsuda discloses a phosphor powder having all the limitations above, but fails to exemplify the percentage of phosphor particles having an aspect ratio of 1.5.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the phosphor powder of Matsuda to have a high percentage of its phosphor particles having an aspect ratio of at least 1.5, in order to maximize the brightness level provided by the phosphor layer and the ease of control over the phosphor layer.

Matsuda further lacks disclosure of use of the phosphor powder in an EL device.

Kimura teaches an EL device comprising a zinc sulfide phosphor.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the phosphor powder of Matsuda in an EL device, as taught by Kimura, in order to produce an EL device having the excellent brightness of the phosphor of Matsuda.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 30% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5. Claim 1 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claim 2 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of copending

Art Unit: 2879

Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 50% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5. Claim 3 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claim 6 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of copending Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 6 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 30% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5, and wherein the phosphor particles have areal stacking defects with mean spacing from 0.5 to 20 nm. Claim 4 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Art Unit: 2879

8. Claim 7 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of copending Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 7 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 30% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5, and wherein the activator is at least one ion selected from the group consisting of copper, manganese, silver, gold and rare earth elements. Claim 5 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claim 8 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 7 of copending Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 8 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 30% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5, and wherein the co-activator is at least one ion selected from the group consisting of chlorine, bromine, iodine and aluminium. Claim 7 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claim 9 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 8 of copending Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 9 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 30% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5, wherein the activator is copper ion and the co-activator is chloride ion. Claim 8 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claim 10 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/682,532. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 10 of the present application recites a phosphor powder having phosphor particles comprising zinc sulfide as a matrix, and further containing an activator and a co-activator, wherein at least 30% of the phosphor particles in the phosphor powder have an aspect ratio of at least 1.5, wherein the mean length of the major axis of the particles having an aspect ratio of at

Art Unit: 2879

least 1.5 is at most 100 microns. Claim 9 of the copending application recites the same limitations, with the aspect ratio being at least 3.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

12. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest the combination of limitations as set forth in claim 4, specifically comprising a phosphor powder having at least 30% of the phosphor particles in the powder with an aspect ratio of at least 2.

The prior art of record fails to teach or suggest the combination of limitations as set forth in claim 5, specifically comprising a phosphor powder having at least 30% of the phosphor particles in the powder with an aspect ratio of at least 3.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-

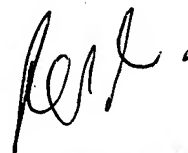
Art Unit: 2879

2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sll



**NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**